

CLAIMS

What is claimed is:

1. A hybrid FM radio system providing an audio output, comprising:
 - 5 a transmitter section transmitting a standard analog FM signal and a digital FM signal, wherein said digital FM signal is packetized and transmitted on a subcarrier band;
 - 10 a receiver section for receiving said analog FM signal and said digital FM signal, wherein said digital FM signal is decoded and converted to an analog output;
 - 15 a means for determining said audio output.
2. The hybrid FM radio system according to claim 1, wherein said digital FM signal is directly derived from a digital source.
- 15 3. The hybrid FM radio system according to claim 1, wherein said digital FM signal is derived from said analog FM signal.
- 20 4. The hybrid FM radio system according to claim 3, further comprising an analog delay in said analog FM signal, wherein said analog delay is substantially equivalent to a cumulative time delay of processing said digital FM signal in said transmitter section and processing said digital FM signal in said receiver section.
- 25 5. The hybrid FM radio system according to claim 1, wherein said means for determining is a multiplexer that switches between said analog FM signal and said digital FM signal.
- 30 6. The hybrid FM radio system according to claim 1, wherein said digital FM signal is packetized in an MP3 format.

7. A hybrid FM radio system producing a quality audio output at the receiver, comprising:
 - a transmitter section transmitting an analog FM signal and a digital FM signal, wherein said digital FM signal is packetized and transmitted on a subcarrier band;
 - a receiver section for receiving said analog FM signal and said digital FM signal, wherein said digital FM signal is decoded and converted to an analog output;
 - a multiplexer connected to said analog FM signal and said digital FM signal, wherein a multiplexer output generates said audio output.
8. The hybrid FM radio system according to claim 7, wherein said multiplexer switches between said digital FM signal and said analog FM signal.
9. The hybrid FM radio system according to claim 8, wherein said multiplexer switches in response to parameters selected from the group comprising a user input, a determination that said digital FM signal is a copy of said analog FM signal, a status determination that said digital FM signals is decoded without errors, and a synchronization determination that said digital FM signal is synchronized with said analog FM signal.
10. The hybrid FM radio system according to claim 9, further comprising an analog delay in said analog FM signal, wherein said analog delay is substantially equivalent to a cumulative time delay of processing said digital FM signal in said transmitter section and processing said digital FM signal in said receiver section.
11. The hybrid digital FM radio system according to claim 9, wherein said digital FM signal is packetized in an MP3 format.
12. A hybrid FM receiver capable of receiving an analog FM signal and a digital FM signal and producing an audio output, comprising:

an antenna for receiving said analog FM signal and said digital FM signal with a front end processing section and a FM demodulator;
an analog FM receiver section connected to said FM demodulator with a means for analog processing;
5 a digital FM receiver section connected to said FM demodulator with a receiver processor and a music processor, wherein said receiver processor performs receiver digital signal processing and wherein said music processor performs music digital signal processing;
a multiplexer connected to said analog FM signal and said digital FM signal, wherein a multiplexer output generates said audio output.
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13. The hybrid FM receiver according to claim 12, wherein said receiver processor includes a memory means for storing a receiver digital signal processing software.
15 14. The hybrid FM receiver according to claim 12, wherein said receiver processor is programmable and has an external interface for downloading a receiver digital signal processing software.
20 15. The hybrid FM receiver according to claim 14, wherein said receiver digital signal processing software is downloaded using a radio data system (RDS) format.
16. The hybrid FM receiver according to claim 12, wherein said music processor is includes a memory means for storing a music compressor/decompressor (CODEC).
25 17. The hybrid FM receiver according to claim 16, wherein said music processor is programmable and has an external interface for downloading said music CODEC.
18. The hybrid FM receiver according to claim 12, further comprising an output switch for switching between said analog FM signal and said digital FM signal.
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19. The hybrid FM receiver according to claim 14, further comprising a mixer for mixing said analog FM signal and said digital FM signal to produce said audio output.
- 5 20. The hybrid FM receiver according to claim 14, wherein said digital FM signal is packetized in an MP3 format.